

PATENT

REMARKS

This paper is responsive to the Office Action dated February 25, 2005. Claims 1-21 were examined.

Rejections under 35 U.S.C. §103

Claims 1-3, 5, 7, 9-13 and 15-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,427,234 issued to Chambers et al. (hereinafter "Chambers"). Applicant respectfully traverses all of these rejections. Claims 4, 6-8 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Chambers as applied to Claim 11, in view of "Adaptive Optimization of the Jalapeno JVM" by Arnold et al. (hereinafter "Arnold").

Chambers

As the Office admits, Chambers never discloses or suggests a hazard rate as recited in Applicant's claims. A hazard rate is derived from principles of reliability engineering. "The program portion hazard rate provides the probability that a program portion will stop being executed given that the program portion has already been executed a given number of times" (Paragraph [1005] of Applicant's specification). Chambers does not even contemplate a probability that a program portion will stop being executed given that the program portion has already been executed a given number of times. The Office cites to a section that discloses the following equation:

```
if (++NumberOfExecutions>EstimatedBreakEvenPoint)
    make_static(...);
```

The code simply discloses a comparison of execution count against a break even point. Neither the break-even point nor the execution count disclose or suggest a hazard rate. The Office proposes that Chambers points out "the likelihood of hazard as diminished/decreasing as long as the frequency being monitored (col. 35, lines 30 – 31) is lower than that of a the break-even point, at which point the hazard or disadvantage of the ratio dynamic recompilation versus executing statically compiled code would risk to increase" (page 3 of Office Action). The Office offers this strained obviousness rationale to address the failure of Chambers to explicitly or inherently disclose a hazard rate. There is absolutely no suggestion or motivation in the

PATENT

reference for this rationale and a lack of evidentiary support for any assertion otherwise. Indeed, “[i]t is never appropriate to rely solely on ‘common knowledge’ in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based” (MPEP 2144.03, *citing In re Zurko*, 258 F.3d 1379 (Fed. Cir. 2001)). “[A]n assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support” (MPEP 2144.03, *citing Id.*).

Indeed, the Office attempts to achieve Applicant’s with a conclusory statement of obviousness. However, the conclusory statement that it would be obvious “to ensure that the higher the frequency of break-even curve analysis, the less likelihood that hazard will decrease” does not relate to probability of a code not being executed given the code has been executed a given number of times.

The Office admits that Chambers does not teach that a hazard rate “approximates a probability that the particular portion will stop being executed in the computer program given that the particular portion has executed x times” as recited in claim 3. The Office’s statement that claim 3 would be obvious is supported with rationale that is difficult to comprehend and that seemingly distinguishes Chambers. The Office reasons that claim 3 is obvious because Chambers implies that execution of code would stop because execution of the code beyond a break-even becomes disadvantageous. Applicant describes compiling a code portion upon reaching a compilation threshold, and not stopping execution as reasoned by the Office.

Furthermore, in rejecting claim 2, the Office simply refers to Figure 24, which depicts break-even points. Claim 2 recites “performing the computation of the compilation threshold coincident with execution of the computer program and using runtime information from the execution.” The break-evens disclosed in Chambers are static, and based on trial results depicted in Figure 23 (col. 7, line 1).

Hence, there is nothing in Chambers that explicitly or inherently discloses or suggests “computing a compilation threshold corresponding to an execution frequency at which a decreasing hazard rate corresponds to a reciprocal of a break-even number of executions that recoup computational costs of compilation” as recited in claim 1, and similarly in claims 11, 15, and 21.

PATENT

Chambers and Arnold

Rejected claims 4 and 6 – 8 depend from independent claim 1, already discussed above. The rejection of these claims relies on the Office's arguments that Chambers discloses claim 1, which has been discounted above. Similarly, rejected claim 14 depends from independent claim 11, which has also been discussed above. In order to reject a claim under 35 U.S.C. §103, every limitation of the claim must be taught by the references. Since the Office relies on Chambers as teaching limitations of the parent claims and Chambers has been shown not to disclose or suggest the limitations of the independent parent claims, the rejections of these dependent claims cannot stand because Chambers in view of Arnold does not teach every limitation. However, Applicant will also point out the mistaken statements about Arnold.

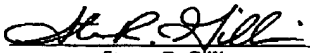
The Office asserts that Arnold "teaches analysis of cost of recompiling of portions of Java code at runtime versus loading for execution of uncompiled codes" (Office Action page 6). However, Arnold never discloses or suggests loading for execution of uncompiled codes. In fact, Arnold specifically states that "Jalapeno employs a compile-only strategy; it compiles all methods to native code before they execute" (third paragraph of section 2). Clearly, Arnold does not disclose or suggest interpreting code or uncompiled code as stated by the Office.

Neither Chambers nor Arnold, standing alone or in combination, disclose or suggest any of Applicants claims for at least the reasons given above. Hence, all of the claims are allowable over the art of record for at least the reasons given above.

Conclusion


In summary, claims 1 – 21 are in the case. All claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless, if any issues remain that could be more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

PATENT

<u>CERTIFICATE OF MAILING OR TRANSMISSION</u>	
I hereby certify that, on the date shown below, this correspondence is being	
<input type="checkbox"/>	deposited with the US Postal Service with sufficient postage as first class mail and addressed as shown above.
<input checked="" type="checkbox"/>	facsimile transmitted to the US Patent and Trademark Office.
 Steven R. Gilliam	25-May-2005 Date

EXPRESS MAIL LABEL: _____

Respectfully submitted,


Steven R. Gilliam, Reg. No. 51,734
Attorney for Applicant(s)
(512) 338-6320 (direct)
(512) 338-6300 (main)
(512) 338-6301 (fax)